

Ion-plasma nitriding as a method of instruments and parts durability

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Abstract

© Published under licence by IOP Publishing Ltd. Improvement of the machines, parts, devices reliability as well as improvement of their quality and operation are topics of interest at the present time. Solution to these problems is related to hardening of the product surface layers in the first place. This article deals with parameters of nitriding process using the example of 38XM steel which is applied in essential parts of turbine installations and compressors operating at temperatures up to 400°C. The article also provides the results of nitriding at different modes.

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References

- [1] Arzamasov BN, Bratukhin AG, Eliseev Yu and Panayotov TA 1999 Ionic chemical heat treatment of alloys in gas media M: Izd.MGTU them. NE Bauman 400
- [2] Israfilov IH, Zvezdin VV, Israfilov DI and Chernova MA 2015 Research on ion-plasma nitriding of parts The low-temperature plasma in the deposition of functional coatings processes T. 1. C. 6. number 211-216
- [3] Israfilov IH, Bashmakov DA, Zvezdin VV, Fairuz RS and Nugumanova AI 2007 Research on ion-plasma nitriding of tool steels Design and study of technical systems interuniversity scientific collection. The Ministry of Education and Science of the Russian Federation, the GOU VPO "Kama State Engineering and Economic Academy" (Naberezhnye Chelny) 100-106
- [4] Gabdrakhmanov A T, Israphilov I H, Galiakbarov A T, Bashmakov D A and Samigullin A D 2013 Impulse plasma surface thermohardening of manufacturing engineering parts International scientific and technical conference proceedings «Innovative engineering technologies, equipment and materials - 2013» (Interbranch scientific and technical complex «IMTOM-2013») and «Improving competitiveness and energy efficiency of machine builders under conditions of WTO» forum (Kazan,) 44-48 Part 2
- [5] Israfilov I.H., Galiakbarov A.T., Bashmakov D.A., Gabdrakhmanov A.T. and Samigullin A.D. 2014 Pulse plasma surface thermostrengthening of machine parts IOP Conf. Ser.: Mater. Sci. Eng. 69 012037
- [6] Lahtin JM, Cohen JD, Spies D. and Boehmer H. 1991 Theory and nitriding technology (M.: Engineering)